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REMARKS

Claims 21-28 are pending and presented for examination in the subject application, with claim 21 being the sole pending independent claim. Claims 1-20 were previously canceled.

Applicants have hereinabove amended claim 21 to place the claim in better form for examination. Applicants maintain that no new matter and no new issues are presented by this amendment. Accordingly, Applicants respectfully request that this Amendment be entered.

Rejection Under 35 U.S.C. §103(a)

On page 2 of the January 27, 2003 Office Action, claims 21-24 and 28 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,358,822 issued to Hou (hereinafter "Hou '822"), and claims 25-27 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Hou '822 in view of U.S. Patent No. 3,808,026 to Sato et al. (hereinafter "Sato '026").

The Examiner stated that these rejections were set forth in the office action mailed December 6, 2000. The Examiner also stated that they were withdrawn in the last office action because of limitations that required both inorganic particles and a coloring agent subjected to dispersion and mixing. The Examiner further stated that the requirement of the coloring agent was removed from the claim limitations in the recent response. The Examiner stated that Hou '822 is reapplied as relevant prior art alone for certain claims and in combination with Sato for other claims.

The Examiner stated that Hou '822 discloses a process of making a liquid toner in the process of Example 2. The Examiner also stated that in the process a thermoplastic polymer and a pigment

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are placed in a solvent that is a good solvent for the polymer at high temperatures and a poor solvent at lower temperatures. The Examiner further stated that the polymer and pigment are sonified and heated to a temperature where the polymer is dissolved and then cooled so the polymer precipitates with the pigment. The Examiner stated that the precipitated polymer particles are removed from the solvent and then redispersed in ISOPAR and mixed with cupric naphthenate along with a steric stabilizer. The Examiner also stated that the reference discloses cupric naphthenate and zirconium octoate as alternative charge control agents.

The Examiner stated that the art as discussed above and as discussed throughout prosecution is pertinent to the claims under consideration. The Examiner also stated that the reference discloses heating of the resin particles in the solvent and suggests that the resin and solvent have the claimed characteristics. The Examiner further stated that Hou '822 discloses stirring while heating together with inorganic particles, in this case carbon black. The Examiner stated that each of the resin and solvent also inherently has a solubility parameter and suggests the claimed solubility parameter.

The Examiner stated that the art suggests the claimed process for the reasons of record. The Examiner also stated that Applicants were advised in the last office action that the combination of inorganic particles and coloring agent previously claimed was the basis for removal of the rejections. The Examiner further stated that because the combination is no longer claimed, the rejection is properly reapplied. The Examiner stated that no specific remarks have been presented to show why the previously applied art is not relevant to the instant claims.

Applicants maintain that Hou '822 and Sato '026 do not render

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obvious the invention claimed in amended claim 21. The claimed invention is patentable over Hou '822 and Sato '026 for at least the following reasons.

Amended claim 21 includes the following features: (i) thermoplastic resin is heated in a specific solvent, while being stirred together with inorganic particles and a coloring agent, so that it is dissolved, and the resultant mixture is then cooled to permit precipitation of the toner particles; and (ii) specific solvent is capable of dissolving the thermoplastic resin when being heated and is substantially incapable of dissolving the resin at room temperature, and the SP (solubility parameter) value of the solvent is adjusted to control the particle diameter of toner particles on the basis of the difference between the SP value of the resin and that of the solvent.

The claimed invention embodies the recognition that when the thermoplastic resin dissolved in the specific solvent is cooled to precipitate toner particles, the particle diameter of toner particles can be adjusted on the basis of the difference in SP value between the resin and the solvent.

The concept of an SP value is conventionally known and different substances have different SP values. However, conventionally, the SP value is merely used to express the degree of mixture of liquids or that of solubility of a resin (or polymer) when it is dissolved in an organic solvent.

If the SP values of two kinds of substances are similar, the two kinds of substances have high affinities with each other. Thus, if the difference in SP values between the substances is small, they can be mixed more evenly, and if it is large, they cannot be evenly mixed (for example, water and oil). Further, if the difference in SP values between resin and solvent is small, resin

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can be easily dissolved in the solvent, and if it is large, resin cannot be easily dissolved.

As another example, paraffin having an SP value of 7 cannot be evenly mixed with ethanol having an SP value at 12.9, since the difference in SP values is too large. On the other hand, paraffin can be evenly mixed with toluene having an SP value of 8.9, since their SP values are more closely aligned. Thus, as Applicants recognized and describe in this application, the SP value can be used as a parameter for estimating whether two liquids can be mixed evenly or not.

These advantages of the claimed invention are not disclosed or suggested in Hou '822.

Hou '822 does not disclose or suggest that a resin can be substantially incapable of dissolving in a solvent under some circumstances. In Example 2 of Hou '822, for example, cooling is performed to lower the temperature to 0°C, to thereby achieve precipitation. Thus, Hou '822 suggests that a resin dissolves in a solvent at room temperature. Furthermore, Applicants maintain that a person with ordinary skill in the art would not be able to choose arbitrarily a combination of resin and organic solvent, wherein the resin cannot be dissolved in the solvent at room temperature, but can be at a higher temperature.

However, use of the SP value as described in this application is needed in order to identify a resin which cannot be dissolved in an organic solvent at room temperature, but can be at a higher temperature, and at the same time, obtain toner particles having an average particle diameter of 2 to 3 μm such that their viscosity distribution is steep when expressed in a graph.

Furthermore, the claimed invention provides that a thermoplastic

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resin in the above specific solvent is heated, while stirring the thermoplastic resin together with inorganic particles and a coloring agent, to thereby dissolve the thermoplastic resin in the solvent, and the mixture is cooled to permit precipitation of the toner particles, whereby the resultant liquid toner has characteristics of an electric viscous fluid. Thus, a liquid toner composition that enables an image of a high quality (or a stable quality) to be formed can be obtained. However, this advantage is not disclosed or suggested by Hou '822.

As should be clear from the discussion above, Hou '822 and the claimed application are different in structure and the advantages that can be obtained therefrom. The claimed invention cannot be easily derived from Hou '822 by a person with ordinary skill in the art.

Sato '026 relates to a method for developing an electrostatic latent image formed on an electrophotographic surface.

Sato '026, like Hou '822, does not teach or suggest adjusting the SP value of the solvent to control the particles diameter of toner particles on the basis of a difference between and SP value of the resin and the SP value of the solvent, as provided by the claimed invention.

Therefore, even a combination of Hou '822 and Sato '026 fails to teach or render obvious all features of the claimed invention.

Regarding claims 22-28, Applicants respectfully point out that claims 22-28 depend on and include all the limitations of claim 21. Thus, claims 22-28 are patentable at least for the reasons set forth above with respect to claim 21.

Accordingly, Applicants respectfully request that the Examiner

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reconsider and withdraw the rejections of claims 21-28 under 35 U.S.C. §103.

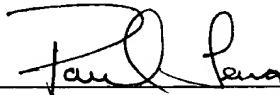
In view of the amendments to the claims and remarks hereinabove, Applicants maintain that claims 21-28 are now in condition for allowance. Accordingly, Applicants earnestly solicit the allowance of claims 21-28.

If a telephone interview would be of assistance in advancing prosecution of the subject application, Applicants' undersigned attorneys invite the Examiner to telephone them at the telephone number provided below.

If a petition for an additional extension of time is required to make this response timely, this paper should be considered to be such a petition, and the Commissioner is authorized to charge the requisite fees to our Deposit Account No. 03-3125.

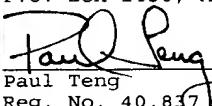
No fee, other than the \$750.00 RCE filing fee and \$410.00 fee for the two-month extension of time, is deemed necessary in connection with the filing of this Amendment. However, if any additional fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 03-3125.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited this date with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.


Paul Teng
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June 27, 2003
Date